

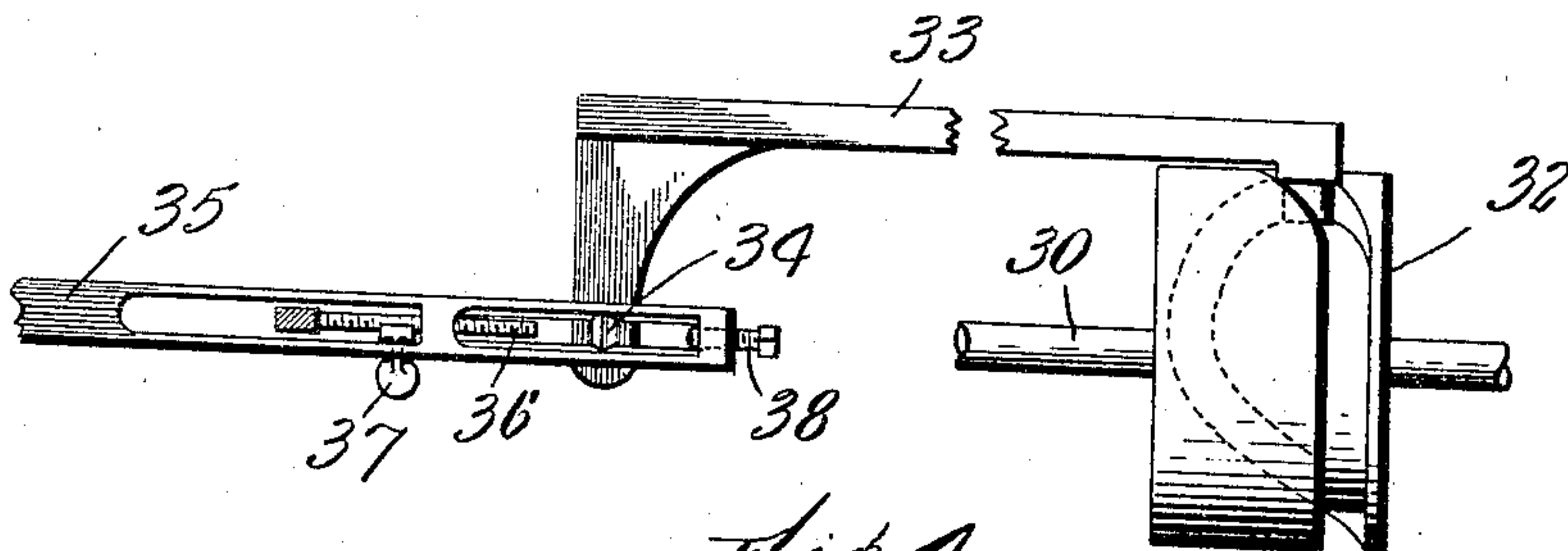
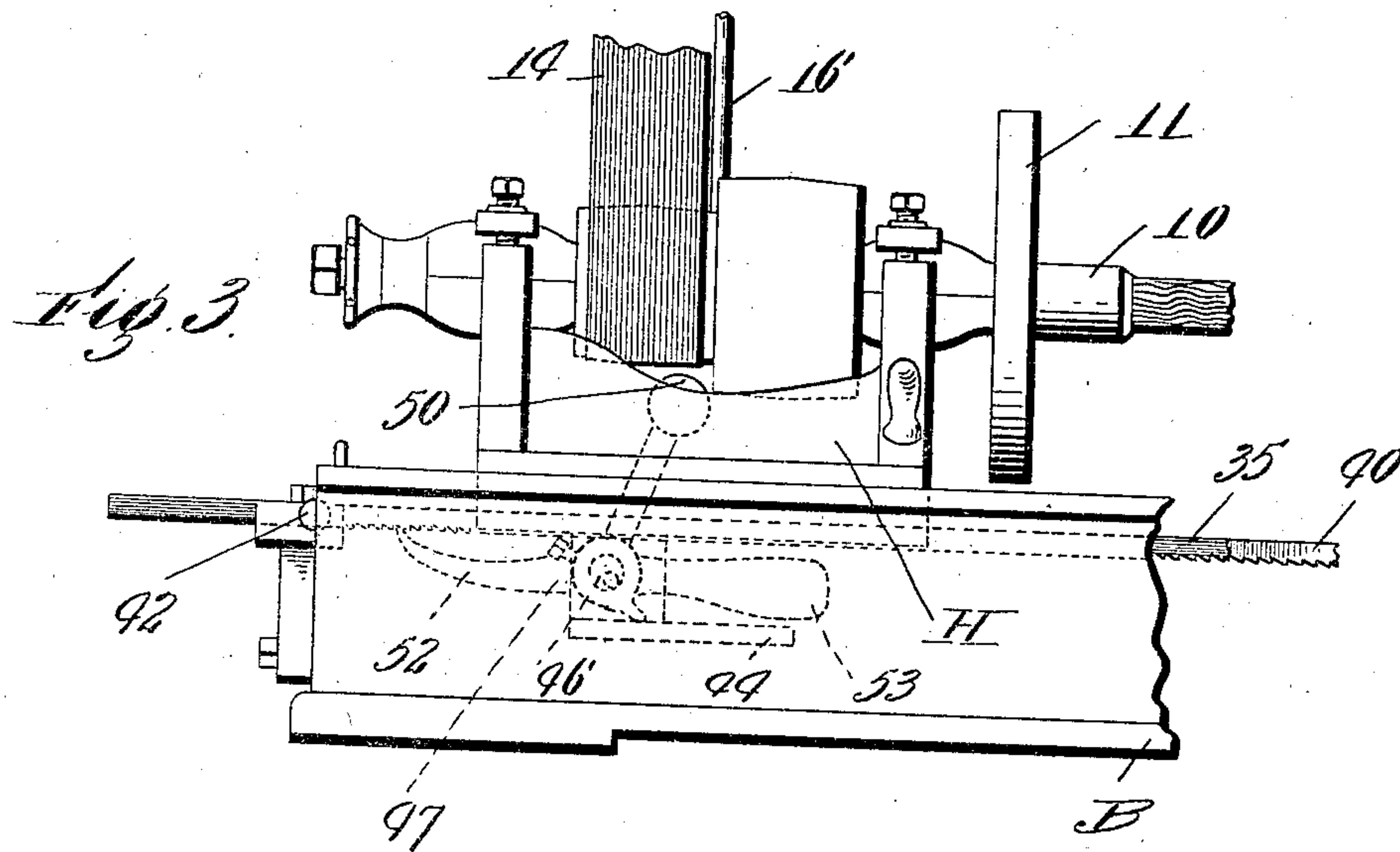
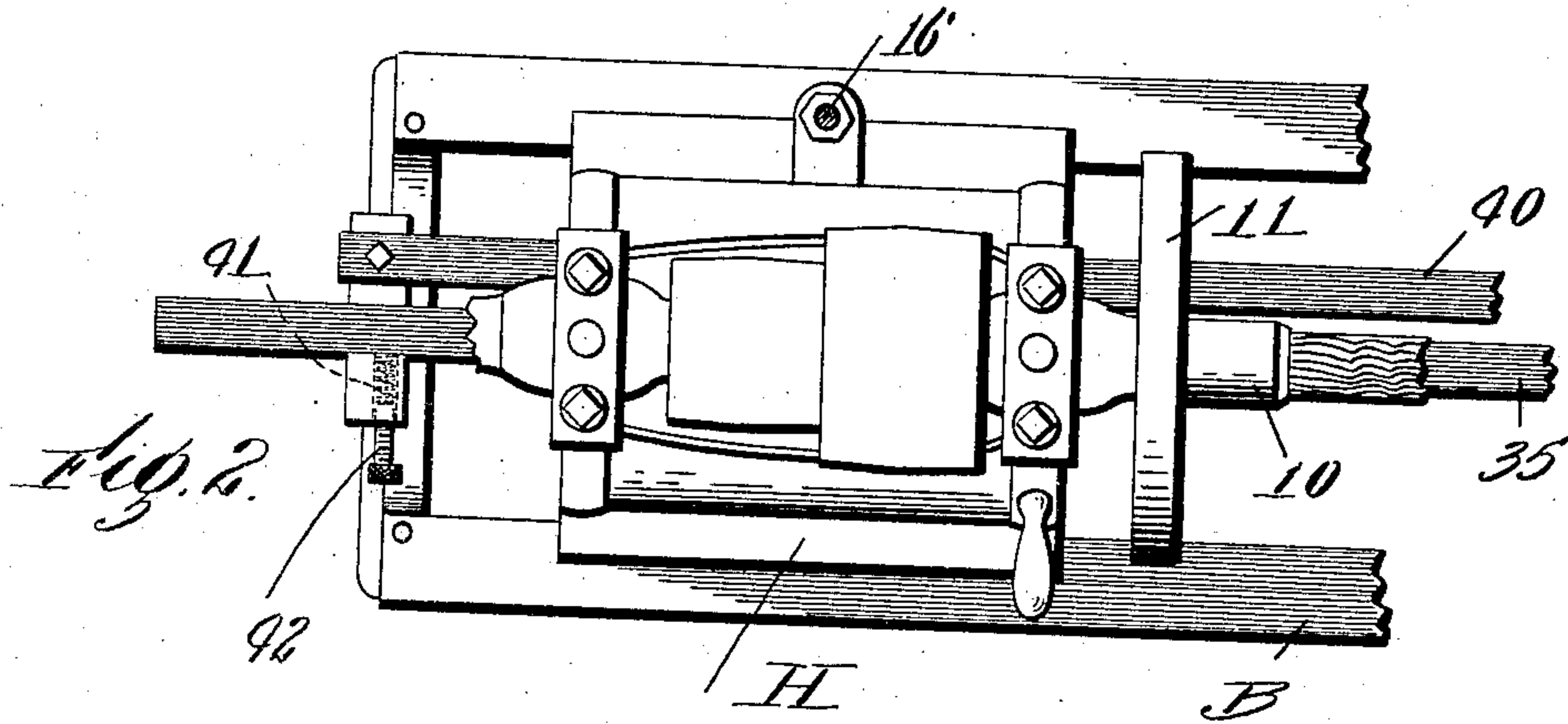
No. 884,114.

PATENTED APR. 7, 1908.

C. H. WAYMOTH.
FEED MECHANISM FOR WOOD TURNING LATHES.

APPLICATION FILED APR. 9, 1906.

3 SHEETS—SHEET 2.



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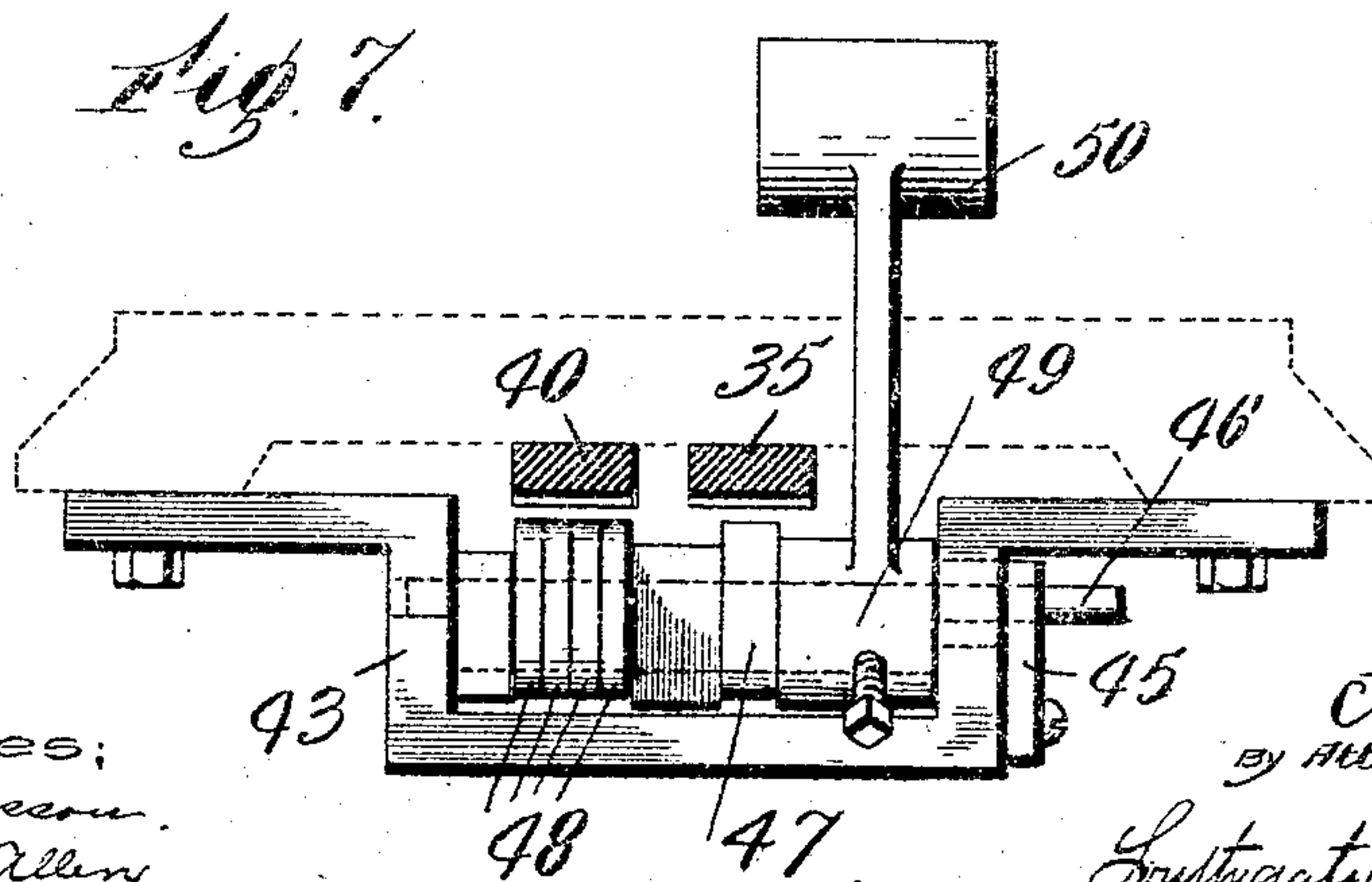
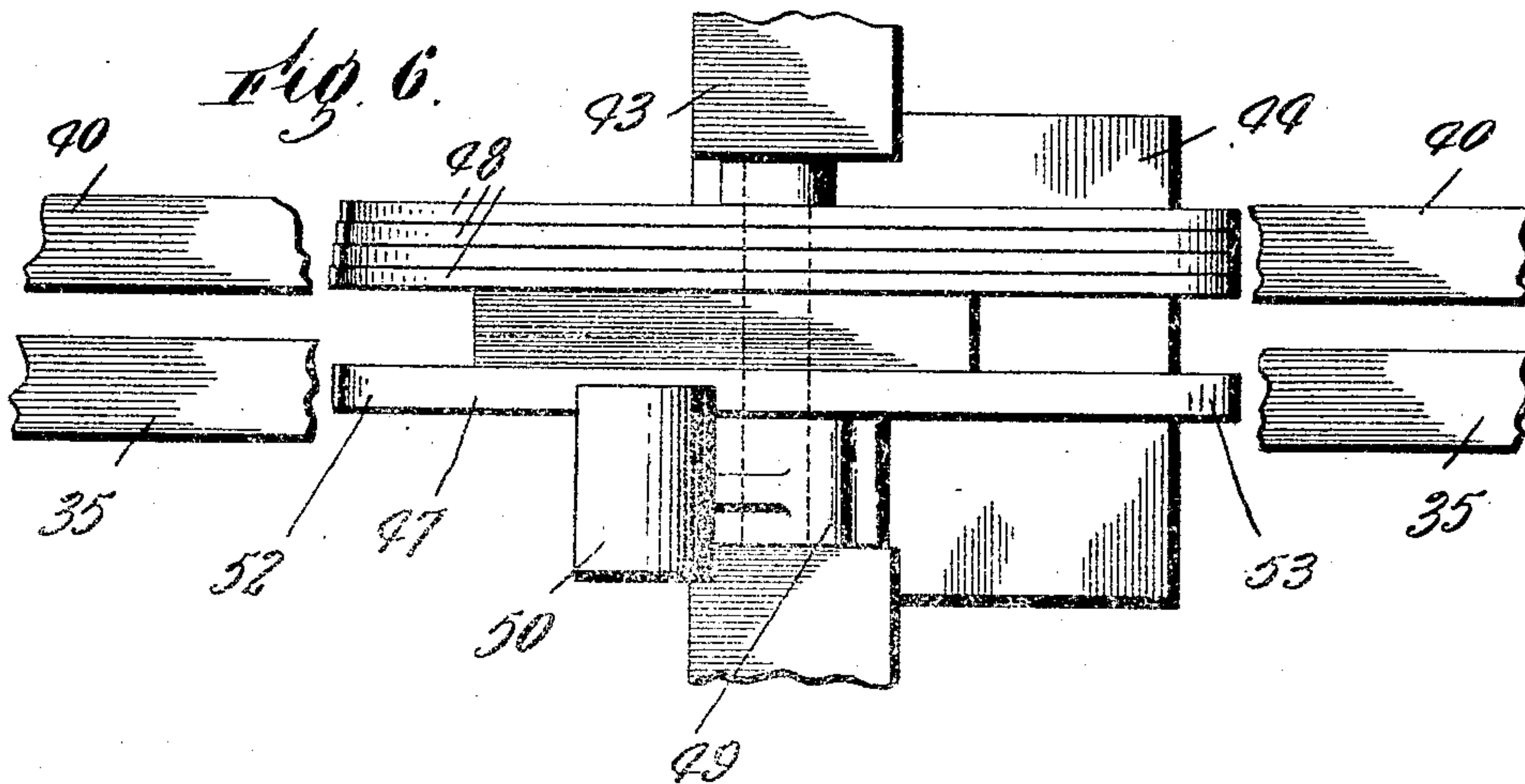
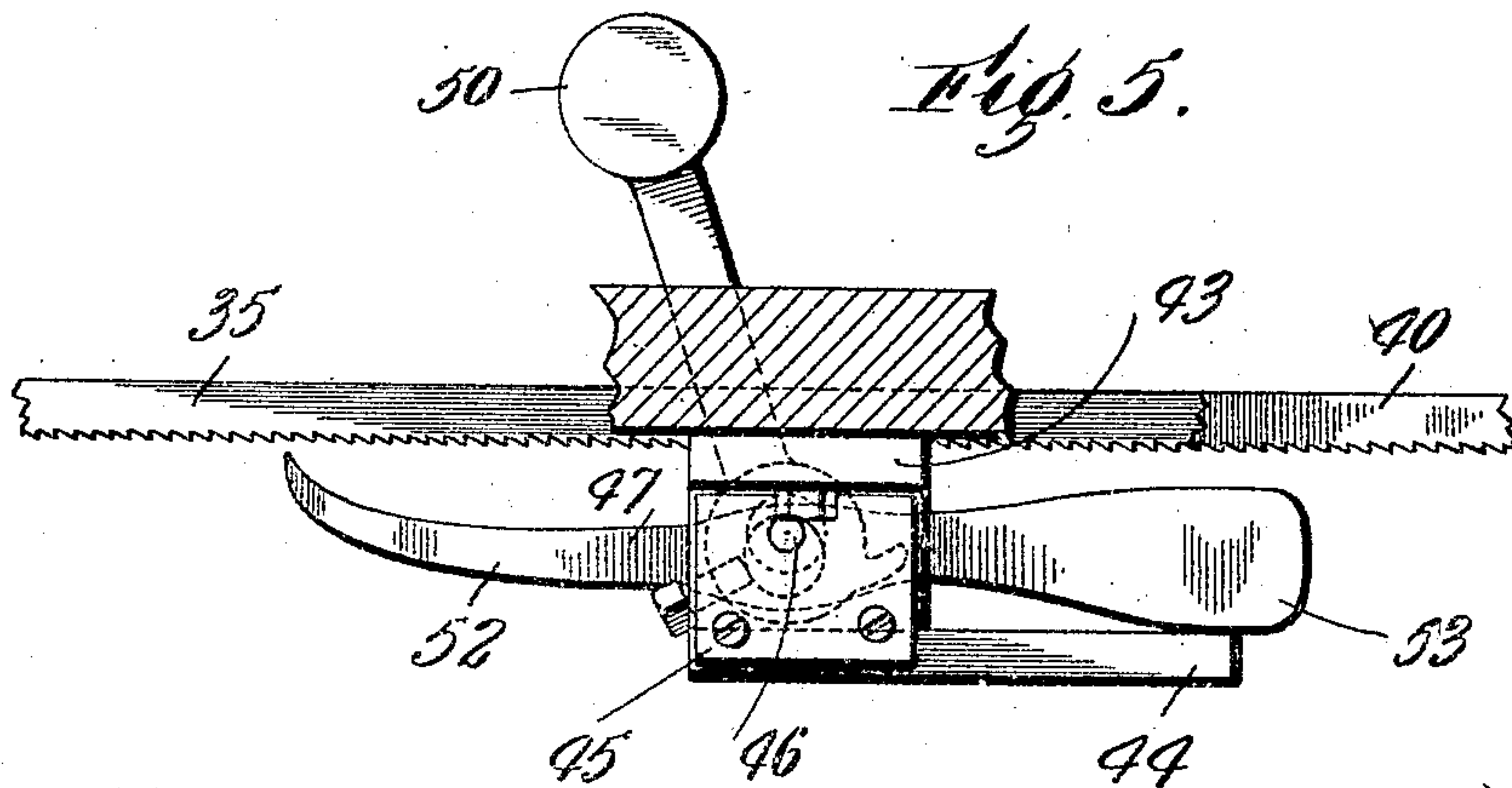
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UNITED STATES PATENT OFFICE.

CHARLES H. WAYMOTH, OF FITCHBURG, MASSACHUSETTS.

FEED MECHANISM FOR WOOD-TURNING LATHES.

No. 884,114.

Specification of Letters Patent.

Patented April 7, 1908.

Application filed April 9, 1906. Serial No. 310,726.

To all whom it may concern:

Be it known that I, CHARLES H. WAYMOTH, a citizen of the United States, residing at Fitchburg, in the county of Worcester and State of Massachusetts, have invented a new and useful Feed Mechanism for Wood-Turning Lathes, of which the following is a specification.

This invention relates to that class of lathes which are used for turning small duplicate parts from wood or other material.

The especial object of this invention is to provide a simple, efficient and accurate feed mechanism for a lathe.

To this end this invention consists of the feed mechanism for lathes, and of the combinations of parts therefor as hereinafter described and more particularly pointed out in the claims at the end of this specification.

In the accompanying three sheets of drawings, Figure 1 is a side view partly broken away of sufficient parts of a lathe and its driving connections to illustrate the application of this invention thereto. Fig. 2 is a partial plan view of the same. Fig. 3 is a side view of the parts shown in Fig. 4. Fig. 4 is a detail view of the operating connections for the feed-rack. Fig. 5 is a detail view showing the feed-pawls in their inoperative or lowered position. Fig. 6 is a plan view partly broken away of the parts shown in Fig. 5, and Fig. 7 is an end view of the parts shown in Fig. 5.

In a prior application for patent filed by me Sept. 27, 1904, Serial No. 226,235, I have shown and claimed an automatically operating wood-turning lathe using roughing, shaping and cutting-off tools which occupy fixed positions longitudinally with respect to the lathe-bed, and in which the stick or work to be operated upon is mounted in a head-stock which is moved or fed longitudinally to present the work to the tools.

A feed mechanism constructed according to this invention has been especially designed for use in the lathe covered by my aforesaid application for patent. It is to be understood, however, that my feed mechanism is applicable to other types of lathes if desired.

Referring to the accompanying drawings for a detail description of a lathe embodying this invention, B designates the lathe bed which is supported upon legs L in the ordinary manner.

Carried by the bed B is a movable head-stock H which is fed longitudinally to pre-

sent work to the tools by connections hereafter described. The spindle of the head-stock is provided with a chuck 10 for holding one end of the stick to be operated upon, and the head-stock spindle also preferably carries a face-plate or fly-wheel 11.

The roughing tool is mounted in a frame or fixture T while the shaping tools may be mounted in said frame in any of the ordinary or preferred manners. A circular saw S is provided for cutting off the finished pieces, and a spindle R may be used for drilling or otherwise shaping the end of the stick.

As herein illustrated, power may be applied to the lathe from an overhead shaft 12. Mounted on the shaft 12 is a long pulley or drum 13 having a belt 14 for driving the head-stock spindle. The rear strand of the belt 14 passes through a guide or holder 15 carried by a rod 16 extending up from the head-stock. Also fastened on the shaft 12 is a pulley 17 for driving the circular saw by means of a belt 18. A small feed pulley 19 carries a belt which runs upon a step-pulley 21. Turning with the step-pulley 21 and preferably connected thereto by a clutch mechanism controlled from a starting handle 28 is a pinion 27 which meshes with and drives a large gear 29 secured on the feed-shaft 30. Fastened upon the feed shaft 30 are two track cams 31 and 32. The track cam 31 is connected to operate the spindle R, while the track cam 32 is connected to operate the feeding devices. These connections are most clearly shown in Fig. 4. As illustrated in this figure, the track cam 32 engages directly with and operates a slide 33. Carried by the slide 33 is a pin or screw 34 engaging a slot in the movable feed rack 35. Threaded into the movable feed-rack 35, and having their ends projecting into the slot are the adjusting-screws 36 and 38. The adjusting screw 36 is held in fixed position by a clamp-piece or set nut 37.

The parts as thus far referred to may be of substantially the same construction as illustrated in my prior application for patent before referred to.

The especial object of my present invention is to provide feeding connections in which a holding rack is employed for preventing any backward movement of the part being fed, and utilizing a plurality of feed pawls of graduated lengths in connection with said holding rack; and also to provide means for mounting said feed pawls so that

they can all be moved up and down in a simple and direct way to throw them into and out of operation as desired.

As shown in Figs. 5 to 7 inclusive, in addition to the movable feed rack 35, I employ a holding rack 40 which is bolted or fastened in fixed position in the frame-work of the lathe. Bolted onto and extending down from the head-stock casting is a support 43, and journaled at one end in the support 43 and at its other end in a plate 45 is a pivot shaft 46. The end pivots of the shaft 46 are eccentric with respect to the central part of the shaft which forms the bearings of the pawls as hereinafter described. Pivotally mounted on the shaft 46 are a number of pawls of graduated lengths. In the present instance one pawl 47 is illustrated as cooperating with the movable feed-rack 35, and four of such pawls 48 are illustrated as cooperating with the fixed holding rack 40. Each of the pawls 47 and 48 is pointed at one end 52 for engaging its rack, and is weighted at 53 so that the same will be normally swung up to engage the rack. Carried by the support 43 is a cross-piece or plate 44.

In order to turn the eccentric pivot shaft of the feed-pawls so that said pawls may be raised or lowered as desired, a hub 49 is fastened on the pivot shaft, and extending up from the hub 49 is a handle carrying a weight 50. When the weight 50 is thrown to one side of its central position, the pivot shaft will be turned to lower the pawls to the position illustrated in Fig. 5, in which the weighted ends of the pawls rest on the cross-piece or table, so that the pawls will be disengaged from their racks. When the weight 50 is thrown to the other side of the pivot shaft, the centers of the pawl will be lifted so that the pawls will be supported in operative position, as shown in Fig. 3. To prevent any movement of the reciprocating feed-rack 35 except at the time when the same is operated by its cam, I may provide a suitable friction for said reciprocating rack as shown in Fig. 2, in which a spring 41 is arranged to bear on the side of the feed-rack, and the tension of the spring 41 can be regulated by a set screw 42.

By utilizing a fixed holding rack in addition to the reciprocating feed-rack, I am enabled to prevent any moving back of the head-stock or other part which is to be fed. In practice also I have found that by pivoting the feed pawls on an eccentric shaft I secure a very convenient and efficient way of moving the feed pawls into and out of operative position, and I secure this result without the use of springs or other pieces which are liable to give out when subjected to wear.

I am aware that changes may be made in applying my invention to various forms of wood turning lathes without departing from the scope of my invention as expressed in the

claims. I do not wish, therefore, to be limited to the particular lathe I have herein shown and described, but

What I do claim and desire to secure by Letters Patent of the United States is:—

1. In a feed mechanism, the combination of a feed rack, means for reciprocating said rack, a movable head-stock, a pawl pivotally supported by said head-stock and adapted to engage the teeth of said rack for transmitting motion therefrom to the head-stock, means for bodily moving said pawl toward and from the rack, and means for positively holding the pawl away from the rack when the pawl is so bodily moved from the rack.

2. In a feed mechanism, the combination of a feed rack having downwardly facing teeth, means for reciprocating said rack, a movable head-stock, a pawl pivotally supported by said head-stock and having a portion projecting upwardly to engage the teeth, means for lowering said pawl bodily from the rack, and means for positively holding said projecting portion of the pawl away from the rack when the pawl is lowered.

3. In a feed mechanism, the combination of a feed-rack, means for reciprocating said rack, a sliding member, a pawl pivotally supported by said sliding member and adapted to engage the rack, said pawl having a weight normally tending to hold the pawl against the rack, means for bodily moving the pawl toward and from the rack, and means for engaging said weight to positively hold the pawl from engagement with the rack when the pawl is moved bodily from the rack.

4. In a feed mechanism, the combination of a feed-rack having downwardly facing teeth, means for reciprocating said rack, a movable head-stock, a pawl pivotally supported by said head-stock and having a portion projecting upwardly to engage the teeth, means for lowering said pawl bodily from the rack, and means for positively holding said projecting portion of the pawl away from the rack when the pawl is lowered, said pawl having a weight normally tending to hold its opposite end against the rack, said means for positively holding the pawl comprising a cross-bar adapted to engage said weight.

5. In a feed mechanism, the combination of a feed-rack, means for reciprocating said rack, a sliding member, a shaft mounted in bearings supported by said sliding member, said shaft having an eccentric portion, a pawl pivotally supported by said eccentric portion, one end of said pawl being adapted to engage the rack, and the other comprising a counter-weight to normally hold the said end in engagement with the rack, and a cross-bar supported by said sliding member adapted to engage said weight when the

shaft is turned to lower the pawl, whereby the pawl will be positively held from engagement with the rack.

6. In a feed mechanism, the combination of a feed-rack, means for feeding said rack, a sliding member having bearings, a shaft mounted to turn in said bearings and having an eccentric portion, a pawl mounted on said eccentric portion, whereby it may be bodily moved by the oscillation of the shaft toward and from the rack, and means for engaging the pawl and positively holding it away from the rack when the shaft is turned to a certain position.

7. A feed mechanism for wood turning lathes comprising the fixture to be fed movably mounted on the lathe bed, a feed rack, means for reciprocating the same, a pivot shaft mounted in eccentric bearings, a cross bar and a weight carried by the pivot shaft and mounted so that when thrown to one side of the center it will raise the feed-pawl to operative position, and when thrown to the other side of the center the weight will rest on said cross-bar and lower the feed-pawl to disengage it from the feed-rack.

8. A feed mechanism for wood turning lathes, comprising the fixture to be fed movably mounted on the lathe bed, a feed rack, and means for reciprocating the same, a holding rack fixed in the lathe frame-work, pawls of graduated lengths carried by the fixture to be fed, a plurality of such pawls engaging the holding rack, and each of said pawls having an operating tooth at one end, and a weighted portion at the other end, a cross-piece under said pawls, a pivot shaft for the pawls mounted in eccentric bearings, and a weight for the pivot shaft which when thrown to one side of the center moves all of the pawls down to inoperative position, and which when thrown to the other side of the center permits the pawls to swing up to engage the racks.

9. In a feed mechanism, the combination of a feed-rack, means for reciprocating said rack, a sliding member, a shaft mounted in bearings supported by said sliding member, said shaft having an eccentric portion, a pawl pivotally supported by said eccentric portion, one end of said pawl being adapted to engage the rack, and the other comprising a counter-

weight to normally hold the said end in engagement with the rack, a cross-bar supported by said sliding member adapted to engage said weight when the shaft is turned to lower the pawl, whereby the pawl will be positively held from engagement with the rack, and means adapted to be connected with said pawl for preventing backward motion of the pawl and sliding member.

10. In a feed mechanism, the combination of a feed rack, means for reciprocating said rack, a movable head-stock, a pawl pivotally supported by said head-stock and adapted to engage the teeth of said rack for transmitting motion therefrom to the head-stock, means for bodily moving said pawl toward and from the rack, means for positively holding the pawl away from the rack when the pawl is so bodily moved from the rack, and means adapted to be connected with said pawl for positively preventing backward motion of said pawl and head-stock.

11. In a feed mechanism, the combination of a feed-rack, means for reciprocating said rack, a slidable member having bearings and having an eccentric portion, pawls mounted on said eccentric portion, whereby they may be moved towards and from the rack, and a stationary rack with which certain of said pawls are adapted to engage.

12. In a feed mechanism the combination of a feed rack, means for reciprocating said feed rack, a stationary rack, a slidable member, pawls supported by said slidable member, one of said pawls being adapted to engage the reciprocating rack and the other the stationary rack, a shaft on which said pawls are mounted supported by the sliding member, means for turning said shaft and holding it in its extreme positions, said shaft having means for moving the pawls toward and from their respective racks, and a cross bar adapted to engage the pawls and hold them from engagement with their racks when the shaft is turned to a certain position.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

CHARLES H. WAYMOTH.

Witnesses:

AGNES P. BACHMANN,
HARRISON BAILEY.